IT Needs of CDC's Bioterrorism Preparedness & Response Program (BPRP)

How Can IT Solutions Help with Laboratory Response?

May 2003 – David A. Bray, MCSD

BPRP & LRN IT Chief

Definition of Bioterrorism (BT)

- The use or threatened use of biological agents or toxins against civilians, with the objective of causing fear, illness, or death.

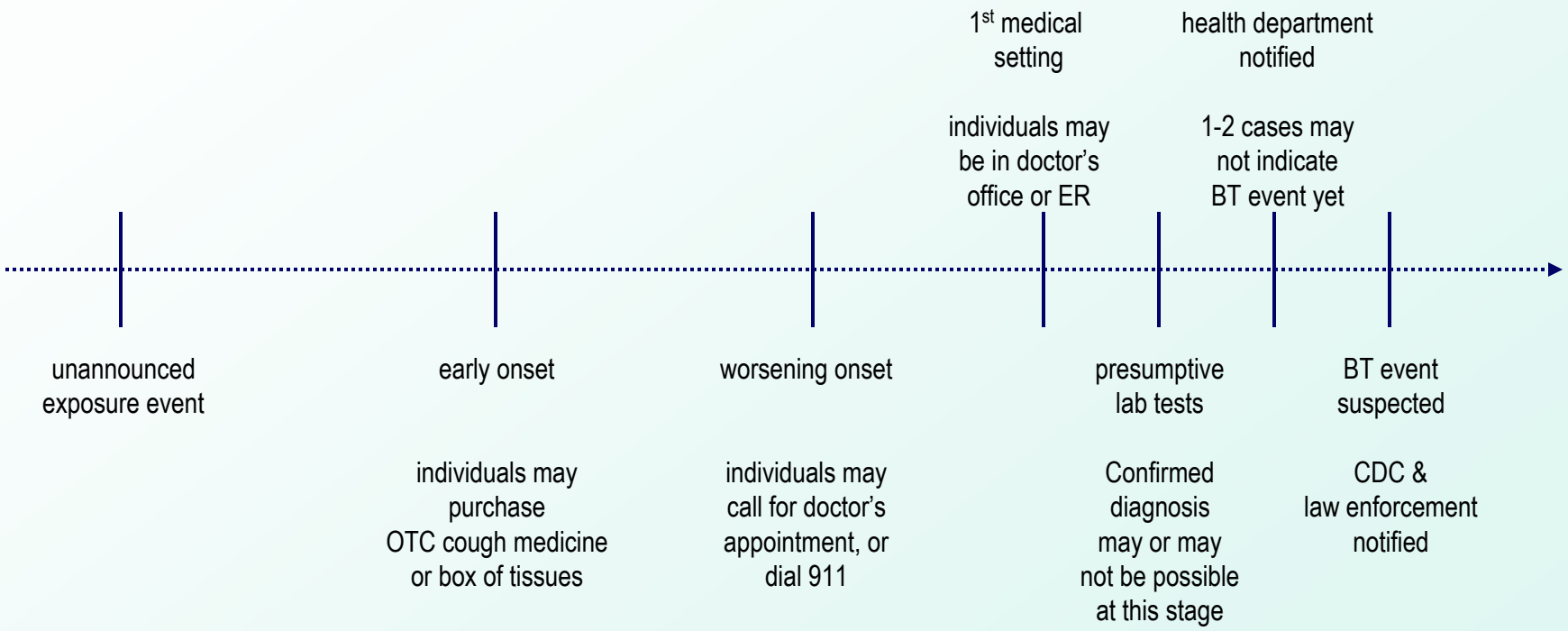
- Potential routes of BT exposure
  - aerosol distribution, food, water, vector-borne, shipped packages, medical devices.

Local Preparedness Is Essential

- Initial detection most likely at the local level
  - initial response will occur at the local level
- CDC's role is to assist local and state public health and medical officials with:
  - detection & surveillance
  - rapid laboratory diagnosis of possible BT agent(s)
  - epidemiologic investigations
  - implementation of control measures

Local Preparedness Is Essential

- BT critical "window" of response



Partners: Local & State

- Primary Care Personnel
- EMS Personnel
- Hospital ER Staff
- Public Health Professionals (NACCHO, CSTE)
- Laboratory Personnel (APHL, ASM)
- Other Emergency Preparedness Personnel
- Local & State Law Enforcement

Partners: Federal

- CDC, FDA, NIH (Dept of Health & Human Services)
- FBI (Dept of Justice)
- USAMRIID & DoD medical centers (Dept of Defense)
- LLNL & other DOE labs (Dept of Energy)
- US Dept of Agriculture
- US Dept of Homeland Security
  - and other Executive Branch agencies

Rapid Electronic Lab Reporting

- What is the Laboratory Response Network?
  - the LRN is a network of public health & clinical labs that provide laboratory diagnostics and disseminated testing capacity to support public health preparedness and BT response
  - many different lab types & levels

- LRN goals:
  - ensure that all confirmatory reference labs collectively maintain state-of-the-art biodetection & diagnostic capabilities
  - promote surge capacity for all biological and chemical agents likely to be used by terrorists

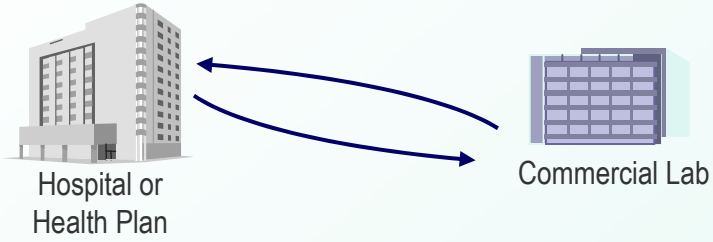
Rapid Electronic Lab Reporting

- Commercial lab tests
  - value in knowing test results
  - value in knowing tests requested over time (or in a given area)
  - however, not likely to be confirmatory indicator of a BT agent

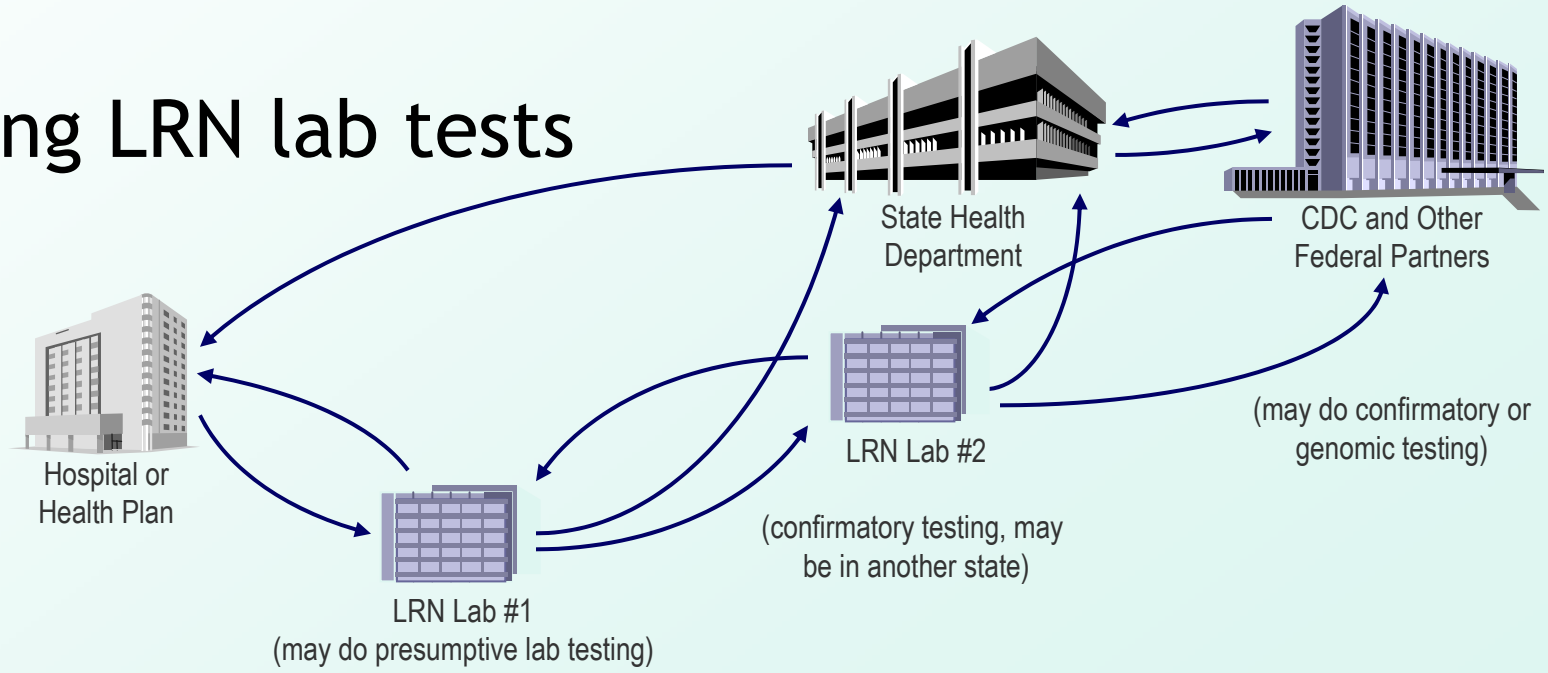
- Confirmatory LRN lab tests
  - similar value in knowing test results & tests requested
  - most tests can be done at a Laboratory Response Network (LRN) lab, which includes state & local public health, military, and Federal laboratories with approved testing capabilities

Rapid Electronic Lab Reporting

- Routing commercial lab tests



- Routing LRN lab tests



How Can IT Help with Lab Reporting

- IT can help with:
  - standards in electronic reporting of collected lab data & results at the local, state, and Federal levels
  - standards in routing & security of data
  - replication and reconciliation of locally stored data with de-identified data routed to state or Federal partners
  - preserving linkages between lab samples/specimens & associated cases or patient data
  - “friendlier” laboratory information management systems
  - delivering training materials to update skills of laboratorians

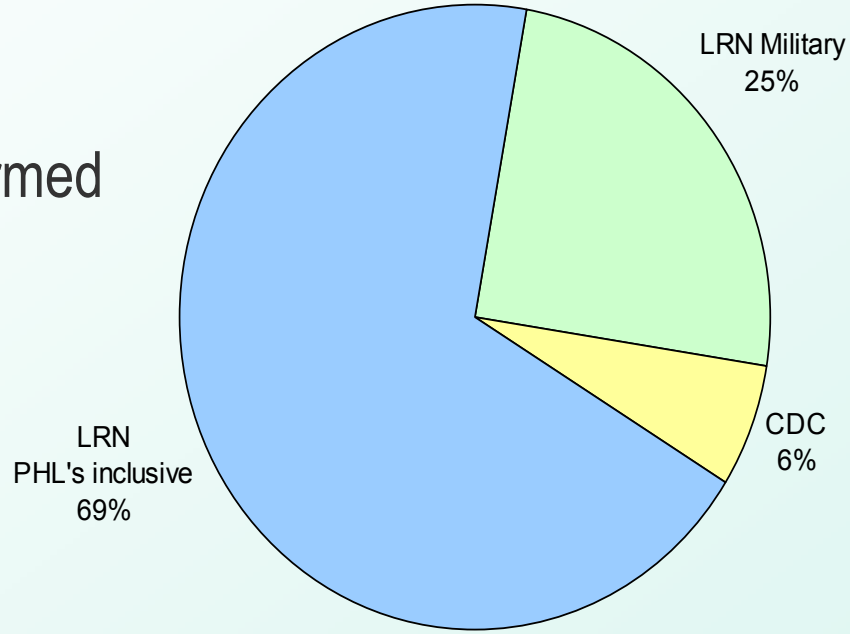
How Can IT Help with Lab Reporting

Lab Environmental Response to Oct-Dec 2001 Anthrax Events

DoD inclusive (25%)
30,200 environmental tests performed

CDC inclusive (6%)
+ 7,500 environmental tests

PHL inclusive (69%)
+ 84,010 environmental tests



Total:
121,710 environmental tests nationally, within a 3 month period

Bray et al, BPRP. As tested through the Laboratory Response Network (LRN) for Bioterrorism.
Information based on electronic responses through the LRN and telephone inquiries. Updates occurring as entities refine data.

Summary Thoughts

- IT should not drive the cart
  - focus on supporting the public health mission
  - programmatic goal should lead the appropriate solutions
  - always assess needs and include the multiple levels of partners
- Solutions should not be overly expensive
  - public health has limited resources to dedicate to IT
  - what people use every day is what they will use in an emergency

Summary Thoughts

- What's needed for BT isn't too different from what most of public health needs
  - other infectious diseases (West Nile, SARS) have similar needs
  - other prevention efforts need to adopt a similar standardized method of collecting public health data & sharing it across state lines
  - public health IT systems need to adopt common standards in electronic data exchange, transport, routing, & security

Summary Thoughts

- IT goals for BT preparedness:
  - iterative development is preferable, roll solutions out in phases as BT preparedness cannot wait 3+ years for an answer
  - promote the timely integration of local health, epi surveillance, and lab data as a foundation for BT & public health threat assessment
  - help develop a better context for action thresholds related to emergency response, public health decisions, & communications